

What Is Claimed Is:

1. An isolated *Bacillus thuringiensis* hybrid toxin fragment, comprising:
 - a) at a C-terminus of said fragment, domain III of a first Cry protein; and
 - b) at an N-terminus of said fragment, an N-terminal region of a second Cry protein.
2. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said first Cry protein is CryIC.
3. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said second Cry protein is selected from the group consisting of CryIA, CryIE, and CryIG.
4. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 3, wherein said second Cry protein is CryIA.
5. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 3, wherein said second Cry protein is CryIE.
6. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 3, wherein said second Cry protein is CryIG.
7. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said first Cry protein is CryIC, and wherein said second Cry protein is CryIA, CryIE, or CryIG.
8. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said N-terminal region of said second Cry protein comprises domain II of said second Cry protein.
9. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said N-terminal region of said second Cry protein comprises domains I and II of said second Cry protein.
10. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said C-terminus comprises the sequence from amino acid position 454 to position 602 of Cry IC, or a

sequence substantially similar to said sequence from amino acid position 454 to position 602 of Cry IC.

11. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 10, wherein said C-terminus comprises the sequence from amino acid position 454 to position 602 of SEQ ID NO:2, or a sequence substantially similar to said sequence from amino acid position 454 to position 602 of SEQ ID NO:2.

12. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said C-terminus comprises the sequence from amino acid position 478 to 602 of Cry IC, or a sequence substantially similar to said sequence from amino acid position 478 to 602 of Cry IC.

13. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 12, wherein said C-terminus comprises the sequence from amino acid position 478 to position 602 of SEQ ID NO:2, or a sequence substantially similar to said sequence from amino acid position 478 to position 602 of SEQ ID NO:2.

14. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, comprising a sequence selected from the group consisting of:

- a) amino acids 1-620 of SEQ ID NO:6;
- b) amino acids 1-620 of SEQ ID NO:6, wherein at least one of the following substitutions is present:
 - Ile at position 609 is replaced with Leu,
 - Ala at position 618 is replaced with Glu,
 - Ser at position 620 is replaced with Tyr; and
- c) a sequence substantially similar to amino acids 1-620 of SEQ ID NO:6.

15. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, comprising a sequence selected from the group consisting of:

- a) amino acids 1-627 of SEQ ID NO:8;
- b) amino acids 1-627 of SEQ ID NO:8, wherein at least one of the following substitutions is present:

Ile at position 617 is replaced with Leu,
 Ala at position 625 is replaced with Glu,
 Ser at position 627 is replaced with Tyr; and

- c) a sequence substantially similar to amino acids 1-627 of SEQ ID NO:8.

16. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, comprising a sequence selected from the group consisting of:

- a) amino acids 1-602 of SEQ ID NO:12; and
 b) a sequence substantially similar to amino acids 1-602 of SEQ ID NO:12.

17. An isolated DNA molecule encoding a protein that comprises the amino acid sequence of the hybrid toxin fragment of claim 1.

18. An isolated DNA molecule encoding a protein that comprises the amino acid sequence of the hybrid toxin fragment of claim 14.

19. An isolated DNA molecule encoding a protein that comprises the amino acid sequence of the hybrid toxin fragment of claim 15.

20. An isolated DNA molecule encoding a protein that comprises the amino acid sequence of the hybrid toxin fragment of claim 16.

21. An isolated *Bacillus thuringiensis* hybrid toxin fragment according to claim 1, wherein said hybrid toxin fragment binds to a binding site in an insect gut that is different than the site bound by said first Cry protein.

22. An isolated DNA molecule according to claim 17, which further encodes a protein having at least one of the following properties: herbicide resistance, plant growth-promoting, anti-fungal, anti-bacterial, anti-viral, and anti-nematode properties.

23. An isolated DNA molecule according to claim 17, which is modified to optimize expression in a heterologous host, said modifications selected from the group consisting of codon optimization for the intended host and removal of known mRNA instability motifs or polyadenylation signals.

24. An isolated DNA molecule that is complementary to the DNA molecule of claim 17.
25. A recombinant vector comprising the DNA molecule of claim 17.
26. An isolated cell transformed with the DNA molecule of claim 17.
27. A plant transformed with the DNA molecule of claim 17, wherein the progeny of such plant contains the DNA molecule stably incorporated and heritable in a Mendelian manner.
28. Seeds of the plant of claim 27.
29. Protein derived from expression of the DNA molecule of claim 17.
30. An insecticidal composition comprising the hybrid toxin fragment of claim 1.
31. A process for controlling insects, comprising exposing them to the insecticidal composition of claim 30.
32. A method of producing a protein, comprising expressing the DNA molecule of claim 17.
33. An insecticidal composition comprising the isolated cell of claim 26.
34. A process for controlling insects, comprising exposing them to the insecticidal composition of claim 33.
35. An isolated *Bacillus thuringiensis* hybrid toxin fragment, comprising amino acids 1-602 of SEQ ID NO:12.
36. An isolated *Bacillus thuringiensis* hybrid toxin fragment that has at least 95% sequence identity with, and has substantially the same insecticidal specificity and substantially the same insecticidal activity as the hybrid toxin fragment of claim 35.
37. An isolated DNA molecule encoding a protein that comprises the sequence of the hybrid toxin fragment of claim 35.

38. An isolated DNA molecule encoding a protein that comprises the sequence of the hybrid toxin fragment of claim 36.
39. An isolated DNA molecule that comprises the sequence of nucleotides 1-1806 of SEQ ID NO:11.
40. An isolated DNA molecule that hybridizes to the DNA molecule of claim 39 under the following set of conditions: hybridization at 7% sodium dodecyl sulfate (SDS), 0.5 M NaPO₄ pH 7.0, 1 mM EDTA at 50°C; wash with 2X SSC, 1% SDS, at 50°C.

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